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WOOD ANATOMY OF THE NEOTROPICAL SAPOTACEAE XXXVI
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**WOOD ANATOMY
OF THE
NEOTROPICAL SAPOTACEAE
XXXVI. SYZYGIOPSIS**

RESEARCH PAPER FPL 424

FOREST PRODUCTS LABORATORY
FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE
MADISON, WIS.

OCTOBER 1982



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Abstract

Syzygiopsis consists of three species, oppositifolia and oblanceolata native to Amazonia and sericea of adjacent Venezuela. Syzygiopsis was first described by Adolpho Ducke in 1925 and consisted of the single species, S. oppositifolia. Later he had some doubts regarding the taxonomic status of his new genus but did not suggest any possible alternates or alliances. In 1942 Baehni transferred Ducke's monotypic genus to Pouteria, producing the new combination Pouteria oppositifolia (Ducke) Baehni; in 1957 van Royen made another new combination, Planchonella oppositifolia (Ducke) van Royen, making it a part of the large Asiatic genus Planchonella.

Anatomically, the wood shows little, if any, alliance with Planchonella but shares some features with species of Pouteria.

Preface

The Sapotaceae form an important part of the ecosystem in the neotropics; for example, limited inventories made in the Amazon Basin indicate that this family makes up about 25 percent of the standing timber volume there. This would represent an astronomical volume of timber but at present only a very small fraction is being utilized. Obviously, better information would help utilization--especially if that information can result in clear identification of species.

The Sapotaceae represent a well-marked and natural family but the homogeneous nature of their floral characters makes generic identification extremely difficult. This in turn is responsible for the extensive synonymy. Unfortunately, species continue to be named on the basis of flowering or fruiting material alone and this continues to add to the already confused state of affairs.

This paper on Syzygiopsis is the thirty-sixth in a series describing the anatomy of the secondary xylem of the neotropical Sapotaceae. The earlier papers, all by the same author and under the same general heading, include:

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|--|---|
| I. Bumelia--Res. Pap. FPL 325 | XIX. Chromolucuma--Res. Pap. FPL 363 |
| II. Mastichodendron--Res. Pap. FPL 326 | XX. Manilkara--Res. Pap. FPL 371 |
| III. Dipholis--Res. Pap. FPL 327 | XXI. Barylucuma--Res. Pap. FPL 372 |
| IV. Achrouteria--Res. Pap. FPL 328 | XXII. Pradosia--Res. Pap. FPL 373 |
| V. Calocarpum--Res. Pap. FPL 329 | XXIII. Gayella--Res. Pap. FPL 374 |
| VI. Chloroluma--Res. Pap. FPL 330 | XXIV. Ecclinusa--Res. Pap. FPL 395 |
| VII. Chrysophyllum--Res. Pap. FPL 331 | XXV. Ragala--Res. Pap. FPL 396 |
| VIII. Diploon--Res. Pap. FPL 349 | XXVI. Myrtiluma--Res. Pap. FPL 397 |
| IX. Pseudoxythece--Res. Pap. FPL 350 | XXVII. Sarcaulis--Res. Pap. FPL 398 |
| X. Micropholis--Res. Pap. FPL 351 | XXVIII. Labatia--Res. Pap. FPL 416 |
| XI. Priurella--Res. Pap. FPL 352 | XXIX. Eglerodendron--Res. Pap. FPL 417 |
| XII. Neoxythece--Res. Pap. FPL 353 | XXX. Pseudocladia--Res. Pap. FPL 418 |
| XIII. Podoluma--Res. Pap. FPL 354 | XXXI. Pouteria--Res. Pap. FPL 419 |
| XIV. Elaeoluma--Res. Pap. FPL 358 | XXXII. Richardella--Res. Pap. FPL 420 |
| XV. Sandwithiodoxa--Res. Pap. FPL 359 | XXXIII. Englerella--Res. Pap. FPL 421 |
| XVI. Paralabatia--Res. Pap. FPL 360 | XXXIV. Franchetella-Eremoluma--Res.
Pap. FPL 422 |
| XVII. Gambeya--Res. Pap. FPL 361 | XXXV. Urbanella--Res. Pap. FPL 423 |
| XVIII. Gomphiluma--Res. Pap. FPL 362 | |

Publication in this manner will afford interested anatomists and taxonomists the time to make known their opinions and all such information is hereby solicited. At the termination of this series the data will be assembled into a comprehensive unit.

WOOD ANATOMY OF THE NEOTROPICAL SAPOTACEAE

XXXVI. SYZYGIOPSIS

By

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Introduction

Adolpho Ducke described the genus Syzygiopsis in 1925 but later (4)^{3/} changed his opinion and stated "Barylucuma and Syzygiopsis which I had proposed on the basis of their opposite leaves cannot be maintained. The problem of placing these plants in good genera remained unsolved." Ducke's single species, Syzygiopsis oppositifolia, was transferred to Pouteria oppositifolia (Ducke) Baehni (2) in 1942. In 1946 Cronquist (3) described another species, Syzygiopsis sericea, with the qualifying statement "In the absence of flowers, the generic position of this species cannot be determined with certainty, but the leaf venation is so similar to that of Syzygiopsis oppositifolia that I am convinced the two are congeneric." In 1957 van Royen (5) transferred Syzygiopsis oppositifolia to the Asiatic genus Planchonella making the new combination Planchonella oppositifolia (Ducke) van Royen. Aubréville (1) accepted Ducke's monotypic genus Syzygiopsis oppositifolia even though the floral structure was not distinguishable from several other genera of the Pouterieae because it was easy to identify by its opposite lanceolate leaves and distinctive nervation. At the present time this genus consists of three species, the most recent being S. oblanceolata Pires; oppositifolia and oblanceolata are Amazonian and sericea is from Venezuela.

Description

Genus description is based on nine specimens representing three species of Syzygiopsis.

^{1/} Pioneer Research Unit, Forest Products Laboratory.

^{2/} Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

^{3/} Underlined numbers in parentheses refer to literature cited at the end of this report.



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General: Wood light brown with no apparent heartwood; specific gravity average 0.83 with the individual specimens ranging from 0.70 to 0.90. Inner bark red-brown and on three samples ranging from 2 to 6 mm in thickness. In sericea the bark is 2 mm thick and fissured, producing a cubical pattern; in the other two specimens the bark is smooth.

Anatomical:

Pores essentially diffuse (figs. 1,3,4) or with tendency toward radial alinement in oblanceolata. Pores solitary but more commonly in radial multiples of 2-4 (6); maximum pore diameter of individual specimens ranging from 95 to 158 μ m; largest in sericea.

Vessel member length averages 680 μ m with individual specimens ranging from 490 to 920 μ m; species averages were 810 μ m for oblanceolata, 590 μ m for oppositifolia, and 720 μ m for the single specimen of sericea. Intervessel pitting 6-8 μ m in diameter. Tyloses, when present, thin-walled. Perforation plates simple.

Axial parenchyma irregularly banded, wavy and frequently discontinuous; individual bands irregularly 1-3 (4) seriate. Cells only occasionally with brown contents except in sericea where they are abundant. Silica, rhombic crystals, and microcrystals not observed.

Wood rays 1-2 seriate in oblanceolata and sericea, 1-3 seriate in oppositifolia; heterocellular (fig. 2). The maximum body height of the multiseriate portion ranges from 197 to 394 μ m with an overall average of 315 μ m. Commonly with brown contents. Vessel-ray pitting irregular in shape and size but commonly obovoid and linear. Silica particles occur in the tabular, square, and upright ray cells; more or less spheroidal in shape and attaining diameters of 8-20 μ m in different specimens. Pitting on lateral walls of upright and square cells abundant and fine. Rhombic and microcrystals not observed.

Wood fibers moderately thick-walled; average length of different specimens ranges from 1.05 to 1.56 mm with an overall average of 1.29 mm. Fiber pits distinct and abundant in sericea. Vascular tracheids present but not always detectable in prepared sections.

Silica content determined by chemical analysis ranged from 0.09 percent to a maximum of 2.44 percent with an overall average of 0.60 percent.

Diagnostic features: Wood light brown with an average specific gravity of 0.83; dull and lusterless. Axial parenchyma irregularly banded, wavy to discontinuous. Pores in diffuse arrangement with an average maximum diameter of 123 μ m. Wood rays 1-3 seriate with abundant brown contents and silica. Intervessel pitting 6-8 μ m in diameter. Rather similar in many respects to Pouteria but here the parenchyma bands are in uniform straight lines.

Literature Cited

1. Aubréville, Andre.
1961. Notes sur des Poutériées Américaines. *Adansonia* 1(2):173.
2. Baehni, Charles.
1942. Mémoires sur les Sapotacées. II. Le Genre Pouteria.
Candollea 9:359.
3. Cronquist, Arthur.
1946. Studies in the Sapotaceae. VI. Miscellaneous Notes. *Bul. Torrey Bot. Club* 75(5):471.
4. Ducke, Adolpho.
1942. New and noteworthy Sapotaceae of Brazilian Amazonia.
Trop. Woods 71:8.
5. van Royen, P..
1957. Sapotaceae of the Malaysian area. VII. Planchonella.
Blumea 8(2):367.

U.S. Forest Products Laboratory

Wood anatomy of the neotropical Sapotaceae: XXXVI.
Syzygiopsis, by B. F. Kukachka, FPL.
5 p. (USDA For. Serv. Res. Pap. FPL 424).

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Table 1.--Selected measurements of specimens examined--Syzygiopsis^{1/}

Species	Collector and number	Sp. gr.	Si	MPD	VML	FL	IV	R	MBH	Source
			%	μ m	μ m	mm	μ m		μ m	
<u>oblanceolata</u>	Maguire et al. 51780	0.82	0.28	118	800	1.46	6-8	2	291	Brazil
	Maguire et al. 51828	0.86	0.43	102	920	1.56	6-8	2	197	Brazil
	Pires 10811	0.85	0.08	118	720	1.32	6-8	2	276	Brazil
<u>oppositifolia</u>	Capucho 378	0.84	0.64	142	700	1.26	6-8	3	355	Brazil
	Cordeiro 1589	0.90		95	570	1.21	6-8	3	394	Brazil
	Cordeiro 1611	0.85	0.44	126	630	1.36	6-8	3	321	Brazil
	Maciel 475	0.88	0.09	118	490	1.05	6-8	3	292	Brazil
	Oliveira, E. 969	--	--	134	590	1.20	6-8	3	394	Brazil
<u>sericea</u>	Williams, Ll. 15074	0.70	0.41	158	720	1.24	6-8	2	323	Venezuela

^{1/} Sp. gr. = specific gravity; Si = silica content; MPD = maximum tangential pore diameter; VML = vessel member length; FL = fiber length; IV = intervessel pit diameter; R = maximum ray seriation; MBH = maximum body height of multiseriate portion of wood rays. Silica analysis by Martin F. Wesolowski, Chemist, FPL.

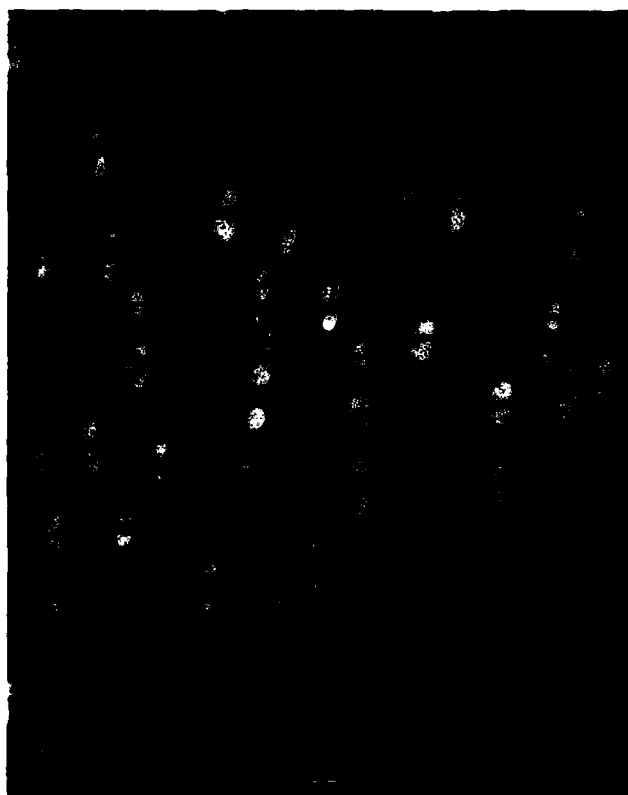


Figure 1.--Syzygiopsis oppositifolia, cross section X 30 (E. Oliveira 969).

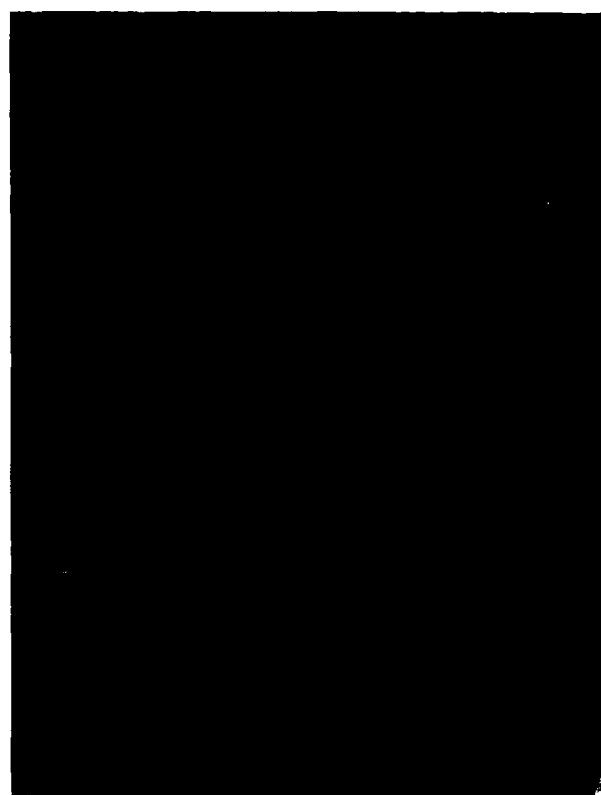


Figure 2.--Same as figure 1, tangential section X 110.

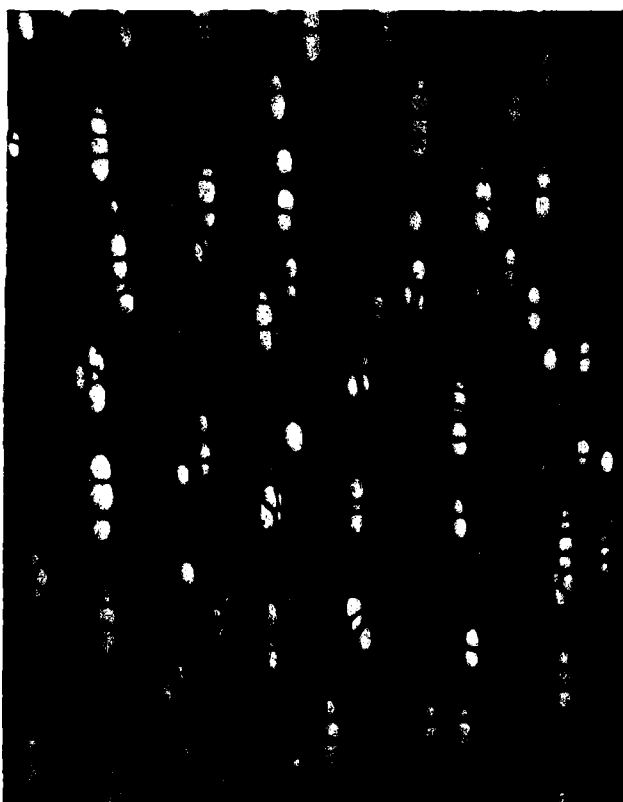


Figure 3.--S. oblanceolata, cross section X 30 (M. Pires 10811).



Figure 4.--S. sericea, cross section X 30 (Ll. Williams 15074).

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